

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-71 (Canceled).

72. (Original) A solid material having spatial regions arranged therein in a predefined pattern, said spatial regions being surrounded by said solid material and providing said solid material with a predetermined energy particle diffraction pattern, said spatial regions comprising a material different from said solid material.

73. (Original) The solid material of claim 72, wherein said spatial regions include a pipe-shaped pattern.

74. (Original) The solid material of claim 72, wherein said spatial regions include a plate-shaped pattern.

75. (Original) The solid material of claim 72, wherein said spatial regions include a sphere-shaped pattern.

76. (Original) The solid material of claim 72, wherein said spatial regions are arranged in at least one unit cell pattern.

77. (Original) The solid material of claim 72, wherein said solid material is a monocrystalline substrate.

78. (Original) The solid material of claim 72, wherein said solid material is a magnetic material.

79. (Original) The solid material of claim 72, wherein said solid material is selected from the group consisting of insulators, semiconductors and metals.

80. (Original) The solid material of claim 72, wherein said solid material has a melting temperature higher than the melting temperature of said different material.

81. (Original) A semiconductor material having regions arranged within said semiconductor material in a periodic array, said regions being surrounded by said semiconductor material and having different particle diffraction patterns than said semiconductor material without regions, said regions comprising a material different from the material of said semiconductor material.

82. (Original) The semiconductor material of claim 81, wherein said regions include a pipe-shaped region.

83. (Original) The semiconductor material of claim 81, wherein said regions include a plate-shaped region.

84. (Original) The semiconductor material of claim 81, wherein said regions include a sphere-shaped region.

85. (Original) The semiconductor material of claim 81, wherein said periodic array includes at least one unit cell.

86. (Original) The semiconductor material of claim 85, wherein said unit cell is a body-centered cubic unit.